

WHAT IS CLAIMED IS:

1 1. A proprietary communication protocol for use in a system controller
2 that includes an application controller and a plurality of applications for controlling a
3 plurality of device controllers on a control network by using data relating to system
4 points that correspond to data variables in the network, said proprietary communication
5 protocol comprising:

6 a plurality of predefined messages transmitted between the application
7 controller and the applications for instructing the application controller to perform a
8 function relating to a select system point, and for reporting to the applications in
9 response to said instruction;

10 a message identification field for identifying a select message from said
11 plurality of messages; and,

12 a protocol identification field for identifying said select message as being
13 transmitted via said proprietary communication protocol.

1 2. The proprietary communication protocol as defined in claim 1
2 wherein said proprietary communication protocol is embedded into a communication
3 protocol of the control network.

1 3. The proprietary communication protocol as defined in claim 1
2 further including a system point identification field for identifying the select system point.

1 4. The proprietary communication protocol as defined in claim 3
2 wherein said system point identification field is a point unique identification (PUID) field
3 for identifying the select system point by a unique identification number that is assigned
to the select system point.

1 5. The proprietary communication protocol as defined in claim 3
2 wherein said system point identification field is a name identification field for identifying
3 the select system point by a user-defined name that is assigned to the select system
4 point.

1 6. The proprietary communication protocol as defined in claim 1
2 further including a priority field for determining whether data relating to the select system
3 point can be written to.

1 7. The proprietary communication protocol as defined in claim 1
2 further including a priority field for determining whether data relating to the select system
3 point can be overridden.

1 8. The proprietary communication protocol as defined in claim 1
2 further including a transaction identification field for uniquely identifying said select
3 message from the plurality of predefined messages.

1 9. The proprietary communication protocol as defined in claim 1
2 further including a field for indicating whether said select message is a last message
3 being transmitted from the application controller to the applications.

1 10. The proprietary communication protocol as defined in claim 1
2 further including a field for indicating at least one element value of the select system
3 point.

1 11. The proprietary communication protocol as defined in claim 10
2 further including a field for determining a format for displaying said element values.

1 12. The proprietary communication protocol as defined in claim 1
2 further including a notification field for indicating at least one type of changes in the data
3 relating to the select system point for which at least one of the applications desires
4 subscription.

1 13. The proprietary communication protocol as defined in claim 12
2 wherein said changes include a change of value, a change of state and a change of
3 quality relating to the select system point.

1 14. The proprietary communication protocol as defined in claim 1
2 wherein said plurality of messages include a discover message transmitted from the
3 applications to the application controller for inquiring whether the select system point is
4 stored in a database of the application controller.

1 15. The proprietary communication protocol as defined in claim 14
2 wherein said discover message refers to the select system point via a unique
3 identification number associated with the system point.

1 16. The proprietary communication protocol as defined in claim 14
2 wherein said discover message refers to the select system point via a user-defined
3 name that is assigned to the select system point.

1 17. The proprietary communication protocol as defined in claim 14
2 wherein said plurality of messages include a message transmitted from the application
3 controller to the application in response to said discover message to report that the
4 select system point is stored in said database.

1 18. The proprietary communication protocol as defined in claim 1
2 wherein said plurality of messages include a message transmitted from the applications
3 to the application controller for subscribing for changes in the data relating to the select
4 system point.

1 19. The proprietary communication protocol as defined in claim 18
2 wherein said changes include a change of value, a change of state and a change of
3 quality relating to the select system point.

1 20. The proprietary communication protocol as defined in claim 18
2 wherein said plurality of messages includes a message transmitted from the
3 applications to the application controller for unsubscribing for changes in the data
4 relating to the select system point

1 21. The proprietary communication protocol as defined in claim 18
2 wherein said plurality of messages include a message transmitted from the application
3 controller to the applications reporting of said changes in the data relating to the select
4 system point in response to said subscription message transmitted from the
5 applications.

1 22. The proprietary communication protocol as defined in claim 1
2 wherein said plurality of messages includes a message transmitted from the
3 applications to the application controller for overriding or writing new values in the data
4 relating to the select system point.

1 23. The proprietary communication protocol as defined in claim 22
2 wherein said overriding and writing message is accepted by the application controller if
3 a priority of an application transmitting said message is greater than or equal to a priority
4 of the data relating to the select system point.

1 24. The proprietary communication protocol as defined in claim 23
2 wherein said plurality of messages includes a message transmitted from the
3 applications to the application controller for releasing said priority of the data relating to
4 the selected system point to allow an application having a lower priority than said priority
5 of the data to override or write new value in the data relating to the select system point.

1 25. The proprietary communication protocol as defined in claim 1
2 wherein said plurality of messages includes a message transmitted from the
3 applications to the application controller for requesting query of the data relating to at
4 least one of the system points for specified information.

1 26. The proprietary communication protocol as defined in claim 25
2 wherein said query message requests a report on all system points that have a write or
3 override priority that is greater than or equal to a specified priority level of said query
4 message.

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1 27. The proprietary communication protocol as defined in claim 25
2 wherein said query message requests a report on all system points that conforms to a
3 specified quality.

1 28. The proprietary communication protocol as defined in claim 25
2 wherein said query message requests a report on all system points that a status of at
3 least one node of the control network.

1 29. The proprietary communication protocol as defined in claim 1
2 wherein said plurality of messages includes a message transmitted from the
3 applications to the application controller for canceling a previously transmitted message.

1 30. The proprietary communication protocol as defined in claim 1
2 wherein said plurality of messages includes a message transmitted from the
3 applications to the application controller for canceling a previously transmitted message.

1 31. The proprietary communication protocol as defined in claim 1
2 wherein said plurality of messages includes a message transmitted from the
3 applications to the application controller for instructing the application controller to query
4 all of the data variables in the network operatively connected to the application controller
5 to determine if any of the data variables have been overridden.

1 32. The proprietary communication protocol as defined in claim 1
2 wherein each of the system points are identified by a unique numeric value.

1 33. The proprietary communication protocol as defined in claim 1
2 wherein the system points are identified by a user-defined name.

1 34. The proprietary communication protocol as defined in claim 1
2 wherein each of the system points include at least one element value.

1 35. The proprietary communication protocol as defined in claim 1
2 wherein the system points have an assigned write priority and an override priority.

1 36. The proprietary communication protocol as defined in claim 1
2 wherein the data relating to the system points are stored in a database of the application
3 controller.

1 37. The proprietary communication protocol as defined in claim 36
2 wherein said database stores user-defined data relating to the system points.

1 38. The proprietary communication protocol as defined in claim 37
2 wherein said database stores a unique identification value of the corresponding data
3 variables in the network.

1 39. The proprietary communication protocol as defined in claim 37
2 wherein said database includes field for storing an address of the corresponding data
3 variables in the network.

1 40. A proprietary communication protocol for use in a system controller
2 that includes an application controller and a plurality of applications for controlling a
3 plurality of device controllers on a control network by using data relating to system
4 points that correspond to data variables in the network, said proprietary communication
5 protocol comprising:

6 a plurality of predefined messages transmitted between the application
7 controller and the applications for instructing the application controller to report an event
8 that occurs in the applications and the device controllers, and for reporting to the
9 applications in response to said instruction;

10 a message identification field for identifying a select message from said
11 plurality of messages; and,

12 a protocol identification field for identifying said select message as being
13 transmitted via said proprietary communication protocol.

1 41. The proprietary communication protocol as defined in claim 40
2 further including an event identification field identifying said event.

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1 42. The proprietary communication protocol as defined in claim 40
2 further including a field for indicating a time and a date in which said event has occurred.

1 43. The proprietary communication protocol as defined in claim 40
2 wherein said plurality of messages include a message for subscribing for a failure in the
3 applications.

1 44. The proprietary communication protocol as defined in claim 43
2 wherein said plurality of messages include a message for canceling said subscription for
3 said failure in the applications.

1 45. The proprietary communication protocol as defined in claim 43
2 wherein said plurality of messages include a message for reporting of said failure in one
3 of the applications to the application controller.

1 46. The proprietary communication protocol as defined in claim 45
2 wherein said plurality of messages include a message for reporting of said failure
3 reported by the one of the applications to the other of the applications.